



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



Contact us

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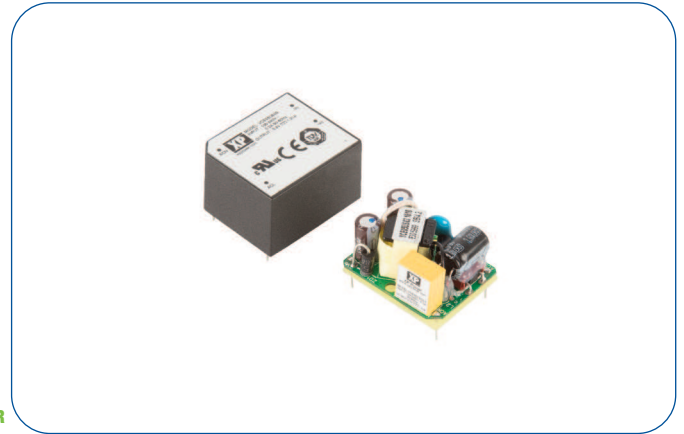
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5 Watts

- Compact Size
- Single Outputs from 3.3 to 48 V
- PCB Mount
- Encapsulated & Open Frame
- Class II
- <0.3 W No Load Input Power
- Peak Load Capability
- Low Cost
- 3 Year Warranty



Dimensions:

VCE05:
1.30 x 1.10 x 0.75" (33.02 x 27.94 x 19.05 mm)
VCE05-P:
1.20 x 1.00 x 0.705" (30.8 x 25.4 x 17.9 mm)

The VCE05 is a series of open frame and encapsulated AC-DC single output power supplies designed for low cost ITE and Industrial applications. The series provides two mechanical options including open frame and encapsulated PCB mount. With approvals to world-wide safety standards, compliance with class B for conducted and radiated emissions and a 130%, 30s peak load capability, these class II isolation parts benefit system designers with easy integration into a wide range of applications.

Models & Ratings

Output Power	Output Voltage	Output Current		Model Number ⁽²⁾
		Nominal	Peak ⁽¹⁾	
5 W	3.3 VDC	1210 mA	1573 mA	VCE05US03
5 W	5.0 VDC	1000 mA	1300 mA	VCE05US05
5 W	9.0 VDC	550 mA	722 mA	VCE05US09
5 W	12.0 VDC	410 mA	541 mA	VCE05US12
5 W	15.0 VDC	330 mA	433 mA	VCE05US15
5 W	24.0 VDC	210 mA	270 mA	VCE05US24
5 W	48.0 VDC	100 mA	135 mA	VCE05US48

Notes

1. Peak load lasting <30 s with a maximum duty cycle of 10%, average output power not to exceed nominal.
2. For Open Frame version add suffix -P to model number, e.g. VCE05US12-P.

Summary

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Input Voltage Range	85		264	VAC	Derate from 100% at 90 VAC to 90% at 85 VAC
No Load Input Power			0.3	W	
Efficiency		78		%	Model dependant
Operating Temperature	-25		+70	°C	Derate linearly from 100% at +50 °C to 50% at +70 °C
EMC	EN55022 Level B Conducted & Radiated, EN61000-3-2, EN61000-3-3, EN60601-1-2				
Safety Approvals	EN60950, UL60950, IEC60950				

Input

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Input Voltage Range	85		264	VAC	
Input Frequency	47		63	Hz	
Input Current - Full Load		0.10/0.06		A rms	At 115/230 VAC
No Load Input Power			0.3	W	
Inrush Current			40	A	At 230 VAC
Earth Leakage Current					Class II construction no earth
Input Protection	Internal T1.0 A/250 VAC fuse fitted in line				

Output

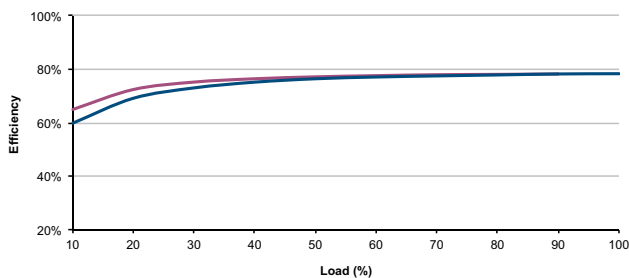
Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Output Voltage	3.3		48	VDC	
Initial Set Accuracy			3/2	%	3% for 03 & 05 models, 2% for others at 50% load
Minimum Load	0			A	No minimum load required
Line Regulation			±1.0	%	
Load Regulation			3/2	%	3% for 03 & 05 models, 2% for others from 10% to 100% load
Start Up Delay			2	s	
Start Up Rise Time			14	ms	
Hold Up Time	6	9		ms	at full load and 115 VAC
Transient Response			4	%	Deviation, recovery within 1% in less than 500 µs for a 25% load change
Ripple & Noise			180	mV pk-pk	3.3-5V, 20 MHz bandwidth
			1	% pk-pk	9V to 48V models, 20 MHz bandwidth
Overvoltage Protection	115		140	% Vnom	Recycle input to reset
Overload Protection	110		180	%	
Short Circuit Protection					Trip & Restart (hiccup mode)
Temperature Coefficient			0.05	%/°C	

General

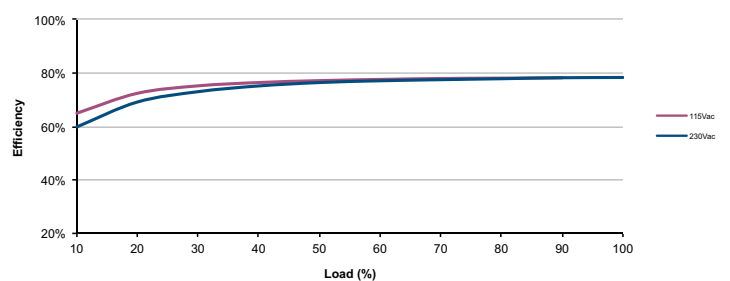
Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Efficiency		78		%	Model Dependant
Isolation: Input to Output	3000			VAC	
Switching Frequency		40		kHz	
Power Density			5.9	W/in ³	
Mean Time Between Failure		>400		kHrs	MIL-HDBK-217F, +25 °C GB
Weight		0.03 (14)		lb (g)	Open frame versions (-P)
		0.053 (24)		lb (g)	Encapsulated version

Efficiency Graphs

VCE05US12



VCE05US24



Environmental

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Operating Temperature	-25		+70	°C	Derate linearly from 100% at +50 °C to 50% at +70 °C
Storage Temperature	-40		+85	°C	
Cooling					Convection-cooled
Humidity			95	%RH	Non-condensing
Operating Altitude			3048	m	
Shock	IEC68-2-27, 30 g, 11 ms half sine, 3 times in each of 6 axes				
Vibration	IEC68-2-6, 2 g, 10 Hz to 500 kHz, 10 mins/cycle, 60 mins each cycle				

EMC: Emissions

Phenomenon	Standard	Test Level	Criteria	Notes & Conditions
Conducted	EN55032	Class B		If output is connected to ground, additional external components will be required. Contact sales for details.
Radiated	EN55032	Class B		
Harmonic Current	EN61000-3-2			Class A
Voltage Flicker	EN61000-3-3			

EMC: Immunity

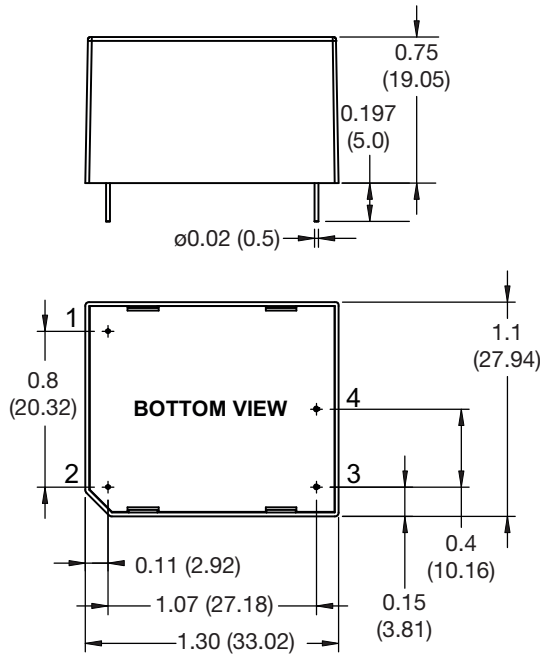
Phenomenon	Standard	Test Level	Criteria	Notes & Conditions
ESD	EN61000-4-2	±6kV contact, ±8kV air discharge	A	
Radiated	EN61000-4-3	10 V/m	A	
EFT	EN61000-4-4	3	A	
Surge	EN61000-4-5	2	A	Line to Line
Conducted	EN61000-4-6	10 Vrms	A	
Magnetic Fields	EN61000-4-8	30 A/m	A	
Dips and Interruptions	EN61000-4-11 (115 VAC)	70% U _r (80.5 VAC) for 100 ms	A	A at High Line, B at Low Line
		40% U _r (46 VAC) for 200 ms	B	
		<5% U _r (0 VAC) for 10 ms	A	
		<5% U _r (0 VAC) for 5000 ms	B	
	EN61000-4-11 (230 VAC)	70% U _r (161 VAC) for 100 ms	A	A at High Line, B at Low Line
		40% U _r (92 VAC) for 200 ms	A	
<5% U _r (0 VAC) for 10 ms		A		
		<5% U _r (0 VAC) for 5000 ms	B	

Safety Approvals

Safety Agency	Safety Standard	Notes & Conditions
CB Report	IEC60950	
UL	UL60950-1 & CSA C22.2, No.60950-1:08	
TUV	EN60950-1	

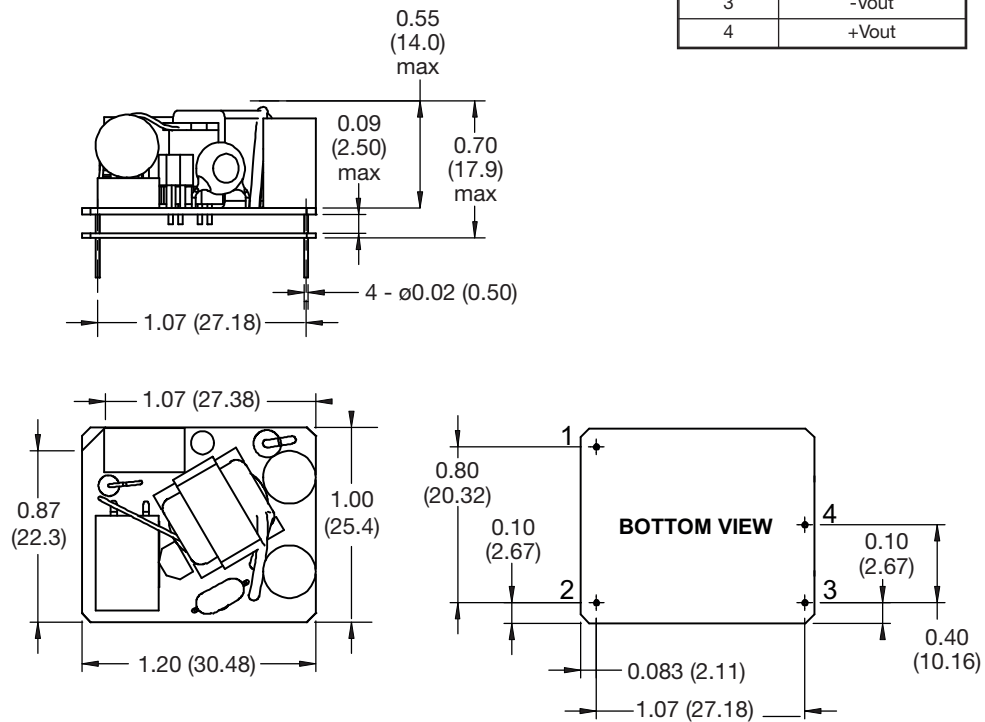
Mechanical Details

Encapsulated



Pin Connections	
Pin	Single
1	ACL
2	ACN
3	-Vout
4	+Vout

Open Frame (-P)



Notes

1. Dimensions in inches (mm).
2. Weight: Open frame versions (-P): 0.03 lbs (14 g)
Encapsulated: 0.053 lbs (24 g)

3. Tolerances: x.xx = ± 0.02 (x.x = ± 0.5)
x.xxx = ± 0.01 (x.xx = ± 0.25)